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09/423,155	11/02/1999	PETER HEILAND	H98HEL1149U	6403

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EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 04/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/423,155

Applicant(s)

HEILAND, PETER

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to amendments and remarks filed February 13, 2002. Claims 1-42 are currently pending.

Claim Objections

1. Claims 1, 6, 7, 10-12, 14, 15, 19, 22, 24, 26-29, 31, 33, 34, 36, 38, 39, 40 and 42 are objected to because of the following informalities:

In claim 1, "the imaging", "the image display" and "image degradations" lack proper antecedent basis. Also, in the terms "a control elements" it is unclear if there is one control element or multiple control elements.

In claim 6, "the control element" and "the image processing device" lack proper antecedent basis.

In claim 7, "the scanning device" lacks proper antecedent basis.

In claim 10, "the image", "the real structure", "the image processing device", "image defects" and "calibration of the filter" lack proper antecedent basis.

In claim 11, "the transfer parameters" lacks proper antecedent basis.

In claim 12, "the data stored" and "the transfer parameters" lack proper antecedent basis.

In claim 14, "the image acquisition device", "the object", "the image processing device", "the displacement", "the line centroids", "image lines", "the whole image", "this temporal displacement" lack proper antecedent basis.

In claim 15, "the image processing device", "the image centroid" and "successive images" lack proper antecedent basis.

In claim 19, "the sample" lacks proper antecedent basis.

In claim 22, "the imaging", "the image display" and "the image degradation" lack proper antecedent basis. Further in the last line, it is unclear if "a filter" is the same filter as claimed earlier or a different filter.

In claim 24, "the image processing device" lacks proper antecedent basis.

In claim 26, "the image" lacks proper antecedent basis.

In claim 27, "the characteristic", "the degraded image quality", "the imaging quality", "the corrected image" and "the iterative calibration" lack proper antecedent basis.

In claim 28, "the characteristic" and "the image defects" lack proper antecedent basis.

In claim 29, "the sensor", "the signal input" and "the image" lacks proper antecedent basis.

In claim 31, "successive images" and "the temporal displacement" lacks proper antecedent basis.

In claim 33, "the result" lacks proper antecedent basis. Furthermore, "feeding", "analyzing", "applying" lack proper antecedent basis, since "characterized in that" is used.

In claim 34, "the image", "the whole image", "the recursive determination", "successive images" and "the image centroid" lacks proper antecedent basis.

In claim 36, "the image degradation" lacks proper antecedent basis. It is also unclear what "the latter" refers to.

In claim 38, "the image", "the imaging of a predetermined reference object", "the real structure", "the image processing device" and "the image defects" lack proper antecedent basis.

In claim 39, "the image mode" lacks proper antecedent basis.

In claim 40, "the temporal displacement" lacks proper antecedent basis.

In claim 42, "the image", "the comparison", "the real structure", "the image processing device" and "image defects" lack proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 22 and 36, it is unclear in its given context how image degradations can occur without an image. It is also unclear where an image is obtained. Further, Applicant claims an imaging apparatus but does not claim how the imaging is carried out or a detector for acquiring an image. That is, it is unclear where or how imaging is provided. Applicant also claims a scanning apparatus, but it is unclear where the scanning takes place.

In claim 4, it is unclear in its given context how the image processing device and acquisition device are functionally related to image degradations.

In claims 7 and 9, it is unclear how a scanning device is functionally related to the rest of the invention.

In claim 8, it is unclear what is the purpose of "a signal input" (of claim 4), if the output of the image processing device is connected to the calibration input of the filter. Are the two inputs the same? Furthermore, it is unclear if "an output of the image processing device" refers to the same output as in claim 4 or a different output.

In claim 10, it is unclear how image defects are functionally related to the rest of the invention. It is also unclear where image defects come from. In addition, it is unclear what occurs in "an image mode." Further, it is unclear how the second signal (of claim 1) is functionally related to the image comparison. It appears that the result of the image comparison is the second signal. It is also unclear what "real structure" refers to.

In claim 11, it is unclear if "a reference object" is the same reference object as claimed in claim 10. It is also unclear what "a real image signal" is.

In claim 12, it is unclear in its given context how a scanning device scanning an object is functionally related to the rest of the invention.

In claim 14, it is unclear how scanning of an object is functionally related to the rest of the invention. It is also unclear what "line centroids" of image lines refer to.

In claim 15, it is unclear where successive images are obtained. It is also unclear what "image centroids" of successive images refer to.

In claim 21, it is unclear in its given context what "wherein the first signal, as the second signal, is also determined on the basis of the temporal displacement that is

determined” means. As claimed in claim 1, the first signal is determined by the at least one sensor.

In claim 26, it is unclear in its given context what “a real structure” refers to.

In claim 27, it is unclear in its given context how “interfering influences”, “an actuator” and “a control element” are related to the ambient influences and the elements already claimed in claim 22. Furthermore, it is unclear how an image is obtained. It is also unclear what “a real structure” of an object refers to.

In claim 28, it is unclear in its given context how “image defects” are functionally related to the rest of the invention.

In claim 29, it is unclear what is fed to the image processing device and what analysis is being conducted since no image has been obtained.

In claims 30 and 32, claim 30 is dependent on a later claim (claim 31). Since their dependency is unclear, claims 30 and 32 have not been examined on the merits.

In claim 31, it is unclear what “the temporal displacement, which is a temporal displacement” means. Further it is unclear what “image centroid” of successive images means.

In claim 33, it is unclear what the first signal consists of. Claim 22 states that the first signal is passed directly to the filter, while claim 33 states that the first signal is processed before being passed to the filter. Furthermore, it is unclear how the image signal shows any image degradation or is affected by ambient influences. That is, it is unclear where the image signal is obtained.

In claim 34, it is unclear what “image centroid” of successive images means.

In claims 38 and 42, it is unclear what "real structure" means.

The other claims are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 9, 13, 22, 36 and 37, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuno et al. (U.S. Patent 4,929,874).

Regarding claims 1-3, 9, 13, 22, 36 and 37, Mizuno et al. disclose (see Figure 1) an apparatus for compensating for ambient influences in imaging and/or raster-mode scanning apparatus (see column 1, lines 20-23) that may degrade an imaging, comprising: a calibratable digital electrical filter (8); a regulating amplifier (11) which is electrically connected downstream of the filter; an internal actuator or control element (12) driven by the regulating amplifier, characterized in that a first signal (at A) dependent on the ambient influences can be passed via a signal input of the filter and a second signal is applied (from 16) is applied to a calibration input of the filter; and the driven actuator or control element has an effect on the imaging, whereby, in a calibrated state of the filter, the image degradation is greatly reduced or essentially compensated for. Mizuno et al. also disclose (see Figure 3) setting a transfer function of the filter. Mizuno et al. further disclose (see Figure 1) the apparatus comprises at least one

sensor (4) for detecting at least one physical quantity outside the apparatus, the physical quantity comprises ground vibrations, this sensor outputting the first signal, which is dependent on the ambient influences at the location of the sensor. The second signal inherently varies as a function of time since the second signal comes from a microprocessor. Further, the apparatus automatically calibrates in any mode since the device is controlled by a microprocessor. Mizuno et al. also disclose (see column 2, lines 21-22) an electron microscope.

6. Claims 1-9, 13, 17-19, 21-23, 25, 29, 35, 39 and 40, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese Publication of Masaki et al. (08321274 published March 12, 1996).

Regarding claims 1 and 22, Masaki et al. disclose (see entire publication) a method and an imaging and/or raster-mode scanning apparatus, having a compensation device for compensating for ambient influences that may degrade the imaging, comprising: an electrical filter (17), a sensor (12) for picking up a first signal, and an internal actuator or control element (3), characterized in that the first signal (from 16a) dependent on the ambient influences passes through the filter directly and drives the actuator and/or control element which as an effect on the imaging and/or on the image display, in a calibration state of the apparatus which is characterized by a setting of a transfer characteristic of the filter, an image degradation is greatly reduced or essentially compensated for, and the filter for calibrating the apparatus has a calibration input (from 22 or 20) and a second signal (from 22 or 20) is applied to the calibration input.

Regarding claims 2-9, 13, 23, 25, 39 and 40, Masaki et al. disclose (see Figure 1) the sensor (12) detects at least one physical quantity outside the apparatus and outputs the first signal which depends on the ambient influences at the location of the sensor. Mizuno et al. further disclose the sensor comprises at least one pick-up for air and/or ground vibrations. Masaki et al. further disclose (see Figure 1) an image acquisition device (7, 6, 13) for acquiring at least one pixel of an object, an image processing device (22) which is connected downstream of the image acquisition device, an image display device and a signal input or a calibration input of the filter (17) is connected to an output of the image processing device (22). Masaki et al. also disclose (see Figure 1) a device (20) for a manual calibration of the filter. Also, Masaki et al. disclose (see Figure 1) the actuator (3) is assigned to a scanning device (a stage or mount) of the apparatus. The second signal of Masaki et al. inherently varies as a function of a scanning position of a scanning device and/or of time since the second signal comes from the image processing device. Further, since the image processing device (22) inputs to the filter (17), the apparatus is set up for automatically (without human intervention) calibrating the filter during an image mode.

Regarding claims 17-19, 21, 29 and 35, Masaki et al. disclose (see Figure 1) actuators (3) for compensating in two mutually orthogonal directions. Masaki et al. further disclose (see Figure 1) a scanning electron microscope. Masaki et al. further disclose (see Figure 1) the actuator comprises a device for deflecting an electron beam and/or a device for displacing a sample. Masaki et al. also disclose (see Figure 1) a transmission electron microscope, the first signal being determined from a temporal

displacement since a vibration is measured. Masaki et al. further disclose (see Figure 1) the claimed invention wherein an output of the filter is applied via a regulating amplifier (19) to the actuator and/or control element.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 16, 20 and 24, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication of Masaki et al. (08321274 published March 12, 1996).

Regarding claim 24, Masaki et al. do not specifically disclose a control element in the image processing device for compensating for image degradation. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide compensation directly through image processing rather than physical compensation of the device in the apparatus of Masaki et al. as well known in the image analysis and processing art in order to simplify and make compensation more efficient.

Regarding claim 16, Masaki et al. do not specifically disclose a cross-correlation. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to cross-correlate the signals in the apparatus of Masaki et al. to provide more accurate compensation.

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Regarding claim 20, Masaki et al. disclose an electron microscope. Masaki et al. do not specifically disclose a light microscope. However, the type of microscope to apply the apparatus to is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a light microscope with such compensation in the apparatus of Masaki et al. to improve detection. Also, it requires only routine skill in the art to reconfigure the apparatus of Masaki et al. for different types of imaging devices or microscopes.

Allowable Subject Matter

9. Claims 10-12, 14, 15, 26-28, 31, 33, 34, 38, 41 and 42 objected to as being dependent upon a rejected base claim, but would be allowable if the 112 2nd paragraph problems are resolved and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed February 13, 2002 have been fully considered but they are not persuasive.

Regarding claims 36 and 37, it is unclear what Applicant finds lacking in the prior art. Applicant generally asserts that a "latter feature" is not disclosed by Mizuno et al. As set forth above, Mizuno et al. disclose (see column 1, lines 22-24) such a vibration control system in an imaging device. Further, Figure 1 depicts a vibration control system that is part of a larger apparatus, thus, the actuator is internal to the apparatus.

Regarding claims 1-5, 7-9, 13, 17-19, 21-23, 25, 29 and 35, Applicant's generalized denial is not persuasive. Furthermore, as set forth above, Masaki et al. do

disclose driving an internal actuator or control element. The transfer characteristic of the filter (17) is inherently set for optimum operation. Furthermore, it is unclear how Masaki et al.'s operation is not a direct compensation.

Thus, as set forth above, this final rejection is proper.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham, can be reached on (703) 308-4090. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
April 15, 2002



Que T. Le
Primary Examiner